



UNITED STATES DEPARTMENT OF COMMERCE
Patent and Trademark Office
ASSISTANT SECRETARY AND COMMISSIONER OF
PATENTS AND TRADEMARKS
Washington, D.C. 20231

BEFORE THE BOARD OF PATENT APPEALS
AND INTERFERENCES

Paper No. 16

Serial Number: 07/957,080
Filing Date: October 7, 1992
Appellant(s): Stuart Corr

Paul N. Kokulis
For Appellant

MAILED

JAN 27 1995

EXAMINER'S ANSWER

GROUP 110

This is in response to appellant's brief on appeal filed
October 24, 1994.

(1) *Status of claims.*

The statement of the status of claims contained in the brief
is correct.

(2) *Status of Amendments After Final.*

The appellant's statement of the status of amendments after
final rejection contained in the brief is correct.

(3) *Summary of invention.*

The summary of invention contained in the brief is correct.

Art Unit: 1105

(4) *Issues.*

The appellant's statement of the issues in the brief is correct.

(5) *Grouping of claims.*

The rejection of claims 1, 5, 8, 14-18, 20-24, 27, and 28 stand or fall together because appellant's brief does not include a statement that this grouping of claims does not stand or fall together. See 37 C.F.R. § 1.192(c)(5).

(6) *Claims appealed.*

The copy of the appealed claims contained in the Appendix to the brief is correct.

(7) *Prior Art of record.*

The following is a listing of the prior art of record relied upon in the rejection of claims under appeal.

WO 90/12849 Jolley 4-1989

(8) *New prior art.*

New references have been applied in a new ground of rejection in this examiner's answer and listed below:

Serial Number: 07/957,080

-3-

Art Unit: 1105

4,978,467	Shankland et al	12-1990
5,185,094	Shiflett	2-1993
5,370,811	Yoshida et al	12-1994

(9) *Grounds of rejection.*

The following ground(s) of rejection are applicable to the appealed claims.

Claims 1, 5, 8, 14-18, 20-24, 27 and 28 are rejected under 35 U.S.C. § 103 as being unpatentable over WO '849 in view of '979 is withdrawn.

Claims 1, 5, 8, 14-18, 20-24, 27, and 28 are rejected under 35 U.S.C. § 103 as being unpatentable over WO '849 is withdrawn.

(10) *New ground of rejection.*

This examiner's answer contains the following NEW GROUND OF REJECTION.

Claim 1 is rejected under 35 U.S.C. § 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

The aforementioned claim states: "1,1,1,2-tetrafluoromethane.." This component is considered vague because applicant does have basis for said component in the

Art Unit: 1105

specification. It is believed that applicant means 1,1,1,2-tetrafluoroethane. Appropriate correction is required.

The following is a quotation of 35 U.S.C. § 103 which forms the basis for all obviousness rejections set forth in this Office action:

A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Subject matter developed by another person, which qualifies as prior art only under subsection (f) or (g) of section 102 of this title, shall not preclude patentability under this section where the subject matter and the claimed invention were, at the time the invention was made, owned by the same person or subject to an obligation of assignment to the same person.

Evaluations of the level of ordinary skill in the art requires consideration of such factors as various prior art approaches, types of problems encountered in the art, rapidity with which innovations are made, sophistication of technology involved, educational background of those actively working in the field, commercial success, and failure of others.

The "person having ordinary skill" in this art has the capability of understanding the scientific and engineering principles applicable to the claimed invention. The evidence of record including the references and/or the admissions are considered to reasonably reflect this level of skill.

Claims 1, 14-18, 20-24, 27 and 28 are rejected under 35 U.S.C. § 103 as being unpatentable over WO '849 (hereinafter "Jolley") in view of Shankland et al.

Art Unit: 1105

Applicant claims a working fluid composition comprising (a) a heat transfer fluid comprising a mixture of at least two hydrofluoroalkanes selected from the group consisting of difluoromethane, 1,1,1,2-tetrafluoroethane and pentafluoroethane; and (b) a lubricant of formula (II).

Jolley discloses a liquid composition comprising a major amount of at least one fluorine containing hydrocarbon and a minor amount of at least one soluble organic lubricant comprises an ester of a polyhydroxy compound and characterized by the general formula $R[CO(O)R']_n$ (pg. 5, line 19 -, pg. 6, line 7) in which R is a hydrocarbyl group, a straight chain lower hydrocarbyl group such as pentaerythritol, dipentaerythritol or trimethylol propane and R' is a carboxylic acid or a carboxylic acid ester-containing hydrocarbyl group and n is an integer, (Pg. 10 line 11 - Pg. 16 line 27) said formula reads on applicant's formula II in claim 1 part (b). With respect to the heat transfer fluid, Jolley teaches that said composition may comprise at least one fluorine containing hydrocarbon such as fluoromethanes and fluorethanes including applicant's preferred 1,1,1,2-tetrafluoroethane or mixtures of fluorine-containing hydrocarbons may also be used (pg. 9, lines 21- 28). As Jolley teaches the preferred lubricant and broadly discloses the refrigerant mixture, the prior art lacks the specific combination of fluorine containing hydrocarbons.

Art Unit: 1105

Shankland et al teach an azeotrope-like composition comprising pentafluoroethane and difluoromethane useful as refrigerants for heating and cooling applications (col. 1, lines 7-10 and claim 1).

It would have been obvious to one of ordinary skill in the refrigerant art to include the mixture of pentafluoroethane and difluoromethane to the liquid composition of Jolley because Shankland et al teach that said composition mixture may be used in a method for producing refrigerant comprising the azeotrope-like compositions and thereafter evaporating the refrigerant in the vicinity of the body to be cooled (col. 4, lines 47-52). Furthermore, as Jolley teaches that a mixture of said refrigerants such as fluoromethanes and fluoroethanes may be employed in said compositions, one of ordinary skill in the art would expect similar results with the employment of a mixture of conventional fluorine containing refrigerants in the absent of unexpected results. Moreover, applicant teaches in his specification that said fluid composition preferably comprises a binary mixture which is an azeotrope or near azeotrope (pg. 4, lines 33-37).

Claims 1, 5, 8, 14-18, 20-24, 27 and 28^{ARE} rejected under 35 U.S.C. § 103 as being unpatentable over WO '849 (hereinafter "Jolley") in view of Yoshida et al or Shiflett.

Art Unit: 1105

Jolley is relied upon as set forth above. Specifically Jolley lacks the inclusion of applicants specific binary or ternary mixture of refrigerants.

Yoshida et al teaches a working fluid composition comprising tetrafluoroethane and at least two fluorinated hydrocarbons wherein said mixture consists of difluoromethane (R-32), 1,1,1,2-tetrafluoroethane (R-134a), and pentafluoroethane (R-125) (abstract, example 7, Table 7, example 8, Table 8 and claim 1).

Shiflett discloses a ternary mixture of pentafluoroethane, difluoromethane and tetrafluoromethane useful as refrigerants, heat transfer media and working fluids (abstract, col. 1, lines 12-27 and Table 3).

It would have been obvious to one of ordinary skill in the art to include a ternary mixture of said fluorinated hydrocarbons of Yoshida et al or Shiflett because each secondary reference teach that it is well known in the refrigerant art to include a mixture of pentafluoroethane difluoromethane and tetrafluoroethane as working fluid refrigerants and by exhibiting an azeotropic or near azeotropic mixture the ternary mixture have zero ozone depletion potential as compared to previously used refrigerants ("Shiflett" col. 3, lines 10-25). Furthermore, Jolley invites the inclusion of a mixture of refrigerants and one of ordinary skill in the art would expect the additional

Art Unit: 1105

refrigerants to benefit the liquid composition of Jolley in an additive or cumulative manner.

(11) *Response to argument.*

Applicant argues that there is no suggestion of applicant's combination of (a) mixtures of specified hydrofluoroalkanes and a (b) lubricant.

The examiner respectfully disagrees as Jolley specifically teaches applicant's preferred lubricant and the inclusion of at least one fluorine containing hydrocarbon or mixtures of said hydrocarbons wherein at least one fluorine containing hydrocarbon is applicant's preferred 1,1,1,2-tetrafluoroethane. More specifically, the secondary references teach that it is well known in the refrigerant art to include mixtures of fluorine containing hydrocarbons such as applicant preferred refrigerants R-125, R-32, and/or R134a in working fluid composition because said mixtures exhibit azeotropic or near azeotropic characteristics which have very small influence on the ozone layer and are more efficient in refrigerating compositions. Thus, one of ordinary skill in the refrigerant art would have been motivated to include said mixture to benefit the working fluid composition of Jolley in an additive or cumulative manner in the absence of unexpected results.

Serial Number: 07/957,080

-9-

Art Unit: 1105

(12) *Period of response to new ground of rejection.*


In view of the new ground of rejection, appellant is given a period of TWO MONTHS from the mailing date of this examiner's answer within which to file a reply to any new ground of rejection. Such reply may include any amendment or material appropriate to the new ground of rejection. Prosecution otherwise remains closed. Failure to respond to the new ground of rejection will result in dismissal of the appeal of the claims so rejected.

For the above reasons, it is believed that the rejections should be sustained.

Respectfully submitted,



PAUL LIEBERMAN
SUPERVISORY PRIMARY EXAMINER
ART UNIT 115


January 21, 1995

1100 New York Avenue, N.W
Ninth Floor
Washington, D.C. 2005-3918